

Diabetic Retinopathy

Assessment of Severity and Progression

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Abstract: This study describes a classification of overall retinopathy severity based on the presence and severity of lesions graded in the Airlie House classification of diabetic retinopathy, and demonstrates its use in assessing progression of retinopathy over a 6-year period in a group of insulin-taking patients. One hundred and ninety-one insulin-taking patients with diabetes of at least 5 years' duration were identified from their doctors' records in 1970-1971. Patients were seen again in 1972-1973 and 1976-1977. Stereoscopic color fundus photographs of 7 fields in each eye were taken at each visit. All photos were graded using a modification of the Airlie House classification, which specified 6 levels of retinopathy for a given eye; when both eyes are considered an 11-step grading scheme results. Of all patients seen at the 2-year visit whose retinopathy was at risk of progressing, 41.2% showed progression of one level or more on the scale, 19.2% progression of two or more levels. At the 6-year examination comparable rates were 75.0% and 58.4%. Of patients whose retinopathy was level 4 in each eye (nonproliferative retinopathy of "moderate" severity) at the baseline visit, 13/21 (72%) had progressed to proliferative retinopathy in at least one eye at the 6-year examination. The classification scheme proposed appears useful for characterizing overall retinopathy severity of patients on the basis of gradings of fundus photographs. The data presented may be of help in planning trials of treatment aimed at slowing the development or progression of retinopathy. [Key words: diabetic retinopathy, grading scheme, longitudinal follow-up, progression.] *Ophthalmology* 91:10-17, 1984

Current knowledge of the natural course of diabetic retinopathy rests chiefly on cross-sectional studies¹⁻⁵ and descriptive reports based on review of clinical records.^{1,6-10} Few longitudinal studies, in which a cohort of patients was followed prospectively, have been reported;^{1,11,12,13} in only one of these¹³ were stereoscopic fundus photographs graded according to a detailed protocol used to document retinopathy status.

In 1970-1971 we identified a group of diabetic patients whom we considered to be insulin-dependent and who were not selected on the basis of ocular status. Baseline information and survival status for these patients have been previously reported.^{3,14} We now report observation of the course followed by these patients over a 6-year period.

MATERIALS AND METHODS

The study population was initially selected for a retrospective investigation of a possible relationship between retinopathy severity and the management philosophy of the patient's primary physician. Physicians were selected chiefly on the basis of familiarity to us as referring physicians and long-established practice. Because we consi-

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